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G4M

Selected US specifications from IPC sub-class G06K

(54) Question-and-answer cards

(57) A survey card contains answers, preferably in bar code form, which are readable by machine reading equipment, and the participant in giving answers to questions, which will usually be on the card, either reveals answers by removing a coating, or covers answers, whereby the card can be passed through the machine reading equipment to give an immediate analysis of the answers given. The system enables the reading and analysing of large numbers of cards in a short period of time. The removable coating may be in the form of a label, but is preferably of the "scratch-off" variety; if answers are to be covered, this can be effected using a pen or a label. The coatings or labels may carry overprinted answers.

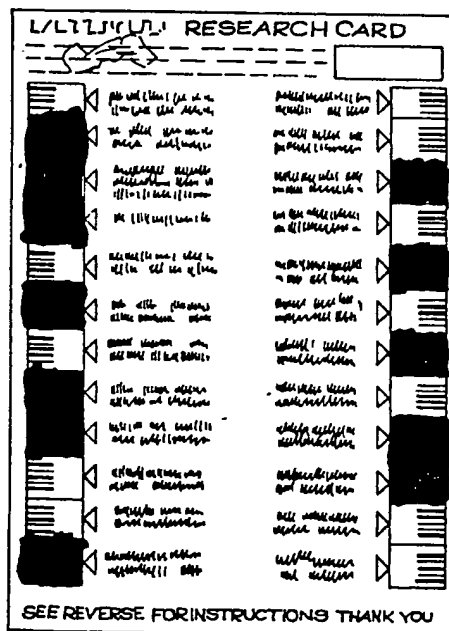
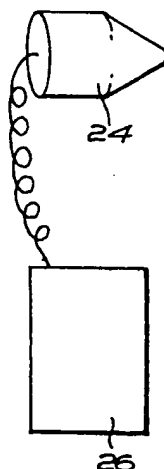


FIG. 2

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FIG. 1

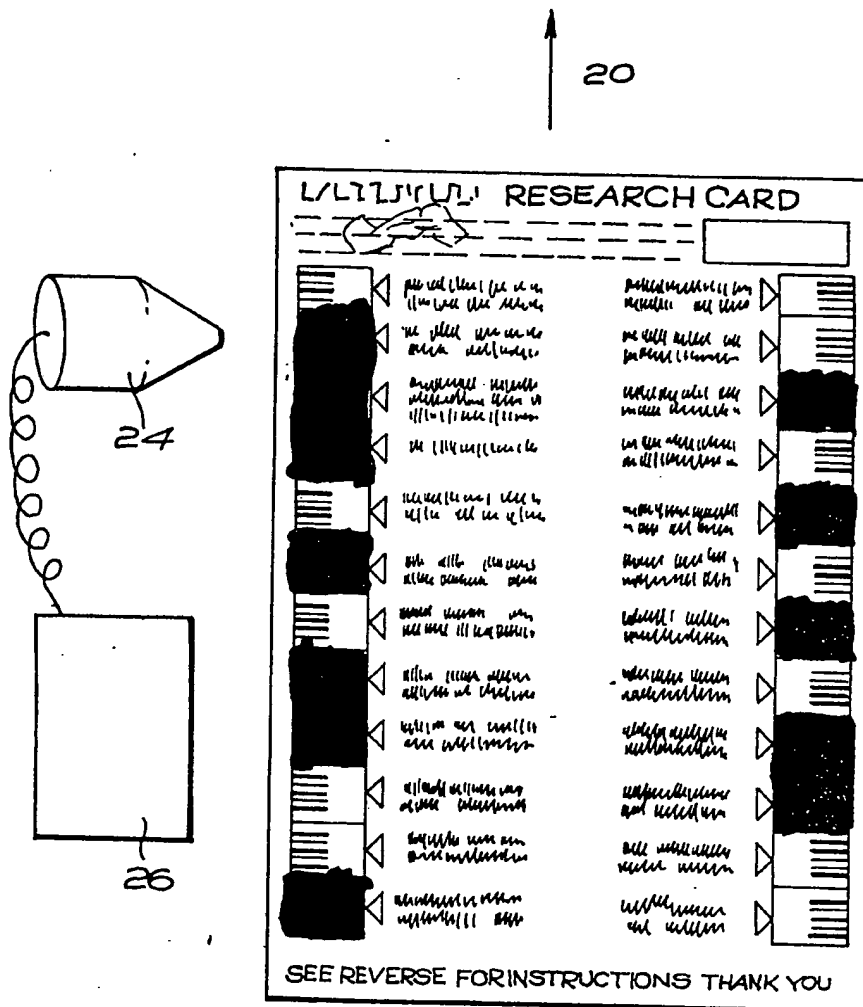


FIG. 2

SPECIFICATION

Improvements relating to printed material

- 5 This invention relates to printed materials, suitably in the form of sheets, cards, tickets or the like providing a means whereby answers given by users of the material can be quickly, easily and inexpensively checked and analysed. Such printed material may be used for assessment or personal surveys.

- 10 It is common practise nowadays to do research by question and answer methods into all aspects of life and living, the object of such research being to enable planners to decide for example how public facilities should be organised for the future, how companies should develop product ranges, what services organisations might offer and so on, and a popular method is to prepare a question and answer form. The questioner might stop a participant in the street and ask a series of questions, the answers to which are logged, usually on the form and from these answers researchers and planners can identify public trends, desires and feelings and make predictions on the basis thereof.

- 20 The procedure of collecting answers is time consuming in requiring a questioner to spend time with each person questioned, the marking down of the answers, followed by the study and analysis of the answers.

- 30 In other arrangements, questionnaires are distributed by mail so that the person questioned can complete the questionnaire in the comfort of his own home, but the problem with this method is that frequently the person questioned will not return the questionnaire or may give spurious answers. This mailing system still suffers from the disadvantage that the answers have to be entered manually, which is time consuming.

- 40 The present invention provides printed material involving a question and answer arrangement but in a form using existing elements of technology in a special combination, which provides a method for analysing answers which is quick and efficient, and the printed material also providing user participation and, it is expected, user pleasure.

- 50 According to the present invention there is provided printed material for participant assessment or population surveys having a plurality of areas coverable or covered by irreversibly removable mask material or other covering means corresponding to answers to a plurality of questions, whereby the mask material or other covering means is applied or removed or not depending upon the answers given by the participant, application or removal of the mask material or other covering means concealing or revealing answers which are in machine readable form, whereby the answers may be analysed by machine reading and

- 65 computer equipment.

The invention also provides a set of such printed material in combination with machine readable equipment and a computer programmed to analyse the printed materials.

- 70 Preferably, the printed material comprises answer information which is concealed by a label, cover or coating, or mask material which is removable by the participant.

- 75 In this aspect, the invention uses the known technology of concealing the information by removable mask means in combination with providing the answer information in the machine readable form. This arrangement enables the printed material after completion of the question and answer programme by the participant, to be inserted in a machine reader which is coupled to a computer to enable the rapid ascertaining and analysis of the answers given.

- 80 In this aspect, the printed material will be arranged so that the participant upon being given the question, which may be on the printed material, will elect to remove the label or more preferably a portion of the irreversible coating material, using for example a coin or the like, depending upon the answer he wishes to give of which there may be two or three possibilities indicated on the printed material, or in the alternative to leave the coating material untouched, that action itself forming the participant's answer. Therefore, the label or coating material in fact performs the function of providing a screen when the machine reading takes place so that an answer which remains covered by the label or coating will not be read by the machine.

- 90 If the answers are printed in code form (as opposed to alpha numeric characters), then the participant will in fact not be aware of the analysis which the machine derives in reading the answers. This prevents the participant from indulging in the giving of spurious answers to a material extent.

- 100 The printed material may be for example in the form of a card having a plurality of question and answer layouts, the answers suitably being arranged in a row so that reading of the answers on passage of the card through a machine reading apparatus is simple, quick and efficient. When the answers have been machine read, it is a simple matter for a computer to be programmed to give analysis of the results instantaneously, such analysis of the results can include individual card analysis and global analysis of all cards taken from a large representative sample of persons questioned.

- 110 In another aspect of the invention the answer information is partially or completely covered depending upon the participants answers to prevent the answer information or part thereof from being read by the machine reading equipment.

- 125 The printed material will be arranged so that the answer information is given or asked a

question, which may be on the printed material, will elect to conceal for example using a pen or label, a portion of the answer coded material depending upon the answer he

5 wishes to give of which there may be two or three possibilities indicated on the printed material, or in the alternative to leave the answer material untouched, that action itself forming the participant's answer. Therefore, the concealing of the answer material in fact performs
10 the function of providing a screen when the machine reading takes place so that only the answer(s) which remain uncovered by the screen will be read by the machine.

15 If the answers are printed in code form, then the participant will in fact not be aware of the analysis which the machine derives in reading the answers. This prevents the participant from indulging in the giving of spurious
20 answers to a material extent.

The cards according to the present invention are suitable for use in areas where people congregate or must remain for a reasonable period, such as at sports grounds, functions,
25 in travel situations such as in aircraft, trains and ships, and large amounts of useful analysis information can be collated on a wide range of topics including statistical research, marketing planning and so on.

30 The invention in various aspects will now be described, by way of example, with reference to the accompanying diagrammatic drawings, wherein:

Fig. 1 is a perspective view of two cards according to a first aspect of the invention;
35 and

Fig. 2 is a front view of one of the cards of Fig. 1 after use and illustrates how the revealed answers are read for subsequent analysis.
40

Referring to the drawings, a card 10 in Fig. 1 is research card for use by one person. In a research programme there may be a multiplicity of these cards supplied to the individual
45 participants and each card is provided in this example with a series of questions 12, on respective sides for male and female participants, and a plurality of answers 14 are adjacent the said questions. The answers are in fact arranged in bar code information, and are
50 covered by means of a removable mask, which may be an irreversibly removable coating or simply an adhesive label. The answers 14 may be multiple answers so that the participant gives only one of several answers to
55 each question, and to give the answer he either removes the coating or the covering label or other concealment means which may have overprinted answers such as "yes",
60 "no", "sometimes", "frequently" and so on depending upon the subject to be analysed. The answer which is revealed is in bar code information, and therefore may not be meaningful to the participant, but it will be meaningful to
65 machine reading means, in accordance with the present invention, because the card is designed to be easily read by machine reading equipment. When answers have been given to all of the questions, and an answer may comprise simply the leaving of the mask material or label covering the answer, the card which may have a unique number 16 as indicated is simply passed through machine reading equipment (such as light pen) having a sensing head arranged to read the bar coded answers which are revealed or are left concealed as the case may be. Electronically, it is a simple matter when the answers have been read to analyse same in any required fashion, and the answers can be analysed regardless of the order in which the cards are inserted, because there may be a unique code on each card identifying this number 16. The card may carry as much instruction as is necessary to enable the user effectively to complete the question and answer arrangement, and as an inducement to have a user return the card, there may be a removable portion containing a number, and the cards may be used subsequently in a draw with winning numbers being advertised, for example in newspapers, the arrangement being that if the participants number is displayed in the newspaper then he will be entitled to a prize. This will induce him to return the card.

The card provides for user participation by the removal of the coating or removal of the label which adds to the interest of the card, and there is the distinct advantage of the card that the answers can be machine read immediately, for example as illustrated in Fig. 2 by moving the card through the equipment in a direction of arrow 20 whilst a reading head 24 reads the answers. A computing device 26 can store and analyse the answers, and peripherals may be connected to computing device to provide displays and printouts.

As an alternative arrangement to that described in relation to Figs. 1 and 2 above, the cards 10 in Fig. 1 may be designed to be used in a different manner. Thus, answers, arranged in bar code information, are selectively covered by the participant by means of a pen or pencil or by an adhesive label. The answers 14 may be multiple answers so that the participant conceals only one of several answers to each question. The answers which are not concealed are in bar code information, and therefore may not be meaningful to the participant, but it will be meaningful to a machine reading means, in accordance with this aspect of the present invention, because the card is designed to be easily read by machine reading equipment. Otherwise the cards are similar in all respects to the cards described above.

The invention provides a means for the quick and easy collection, collation and analysing of large amounts of information as related to a large number of people, which enables

forward planning to be done most effectively.

It can be appreciated that the invention has very wide application and can be used in many areas of industry and research.

- 5 It is to be mentioned that the answers to the questions can be in any combination related to the extent of the analysis required. For example the removable material may be indicated as having a YES answer, a NO answer, or a DON'T KNOW answer, and the
10 indication of the respective answers may be by some suitable marking which may be an overprinting.

- 15 The design of the card may be as required by the customer.

- The aspects of the invention may be combined in a single card i.e. same answers may require revealing of the machine readable information, whilst same answers require the con-
20 cealing of such information.

- A major advantage of the present invention is that the printed material enables the immediate reading and storing of the answers and analysis of these answers. Large numbers of
25 cards can be coped with easily, and the order of reading is immaterial. This compares favourably with the known arrangements which are labour intensive by comparison in requiring an operator to translate from each
30 questionnaire the respective answers, translation being either by keying the answers into a computer or by creating punched cards from the answers and then feeding the cards into a computer.

- 35 Portable reading equipment can be used for reading the cards and for storing information so that the cards can be read and the information stored at the location of the research which may be on site, in an aero-
40 plane or on a train. The person operating the reading and storing the equipment need not be required to return the cards to a central processing location, but he can dispose of them on site if required.

45 CLAIMS

1. Printed material for participant assess-
ment or population surveys having a plurality
50 of areas coverable or covered by irreversibly removable mask material or other covering means corresponding to answers to a plurality of questions, whereby the mask material or other covering means is applied or removed
55 or not depending upon the answers given by the participant, application or removal of the mask material or other covering means concealing or revealing answers which are in machine readable form, whereby the answers may be analysed by machine reading and
60 computer equipment.

2. Printed material according to Claim 1, in the form of a printed sheet or card.

3. Printed material according to Claim 2,
wherein the machine readable information is in
65 bar coded form.

4. Printed material according to Claims 2 or 3, wherein the printed material carries the questions corresponding to the answer information which is machine readable.

- 70 5. Printed material according to Claim 2, 3 or 4, wherein at least some of the answer information is initially concealed and is revealed by or for the participant in giving answers.

- 75 6. Printed material according to Claims 2, 3, 4 or 5, wherein at least some of answer information is initially not concealed and is concealed by or for the participant in giving answers.

- 80 7. Printed material according to any preceding Claim, wherein the answer information for respective questions is arranged in alignment enabling the printed material readily to be read by the machine reading equipment.

- 85 8. Printed material substantially as hereinbefore described with reference to the accompanying drawings.

9. The combination of a set of printed material each according to any preceding claim
90 and machine reading equipment for reading the answer information of each printed material after use thereof.

10. The combination according to Claim 9, wherein the machine reading equipment is portable and can store or transmit answer information read from the printed material in a form enabling it to be analysed by a computer at a remote location.

11. The combination according to Claims 9 or 10, wherein each printed information has a unique code which is readable by the machine, enabling the set of printed material to be analysed regardless of the order in which the printed material is machine read.

- 105 12. The combination according to Claim 9, 10 or 11 including a computer programmed to analyse the answer information read from the printed material by the machine reading equipment.

- 110 13. The combination of printed material and machine reading equipment substantially as hereinbefore described with reference to the accompanying drawings.

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